

IN THE CLAIMS**Please amend the claims as follows:**

Claim 1 (Previously Presented): A method of facilitating a process performed by a semiconductor processing tool, comprising:

inputting process data relating to an actual process being performed by the semiconductor processing tool;

inputting a first principles physical model including a set of computer-encoded differential equations, the first principles physical model describing at least one of a basic physical or chemical attribute of the semiconductor processing tool;

performing first principles simulation for the actual process being performed during performance of the actual process using the physical model to provide a virtual sensor measurement in accordance with the process data relating to the actual process being performed in order to simulate the actual process being performed, said first principles simulation result being produced in a time frame shorter in time than the actual process being performed; and

using the virtual sensor measurement obtained during the performance of the actual process to facilitate the actual process being performed by the semiconductor processing tool.

Claim 2 (Previously Presented): The method of Claim 1, wherein said inputting process data comprises directly inputting the data relating to the actual process being performed by the semiconductor processing tool from at least one of a physical sensor and a metrology tool physically mounted on the semiconductor processing tool.

Claim 3 (Previously Presented): The method of Claim 1, wherein said inputting process data comprises indirectly inputting the data relating to the actual process being